

Very-Low-Calorie Diets



U.S. DEPARTMENT
OF HEALTH AND
HUMAN SERVICES

WIN *Weight-control Information Network*

What is a very-low-calorie diet (VLCD)?

VLCDs are commercially prepared formulas of about 800 calories that replace all usual food intake for several weeks or months. VLCDs are not the same as over-the-counter meal replacements, which are meant to substitute for one or two meals a day. VLCDs, when used under proper medical supervision, effectively produce significant short-term weight loss in patients who are moderately to extremely obese.

Studies have shown that meal replacements at higher calorie levels (800 – 1000 calories) produce weight loss similar to that seen with much lower calorie levels, probably due to better compliance with the diet. In addition, VLCDs are usually part of weight-loss treatment programs that include other techniques such as behavioral therapy, nutrition counseling, physical activity, and/or drug treatment.

Who should use a VLCD?

VLCDs are intended to produce rapid weight loss at the start of a weight-loss program in patients with a body mass index (BMI) greater than 30. BMI correlates significantly with total body fat content. It is calculated by dividing weight in kilograms by height in meters squared, or by dividing weight in pounds by height in inches squared and multiplying by 703.

Use of VLCDs in patients with a BMI of 27 to 30 should be reserved for those who have medical complications resulting from their overweight. VLCDs are not recommended for pregnant or breastfeeding women. VLCDs are not appropriate for children or adolescents, except in specialized treatment programs.

Very little information exists regarding the use of VLCDs in older people. Because people over age 50 already experience normal depletion of lean body mass, use of a VLCD may not be warranted. Also, people over 50 may not tolerate the side effects associated with VLCDs because of preexisting medical conditions or need for other medications. Physicians must evaluate on a case-by-case basis the potential risks and benefits of rapid weight loss in older individuals, as well as in people with significant medical problems or who are on medications.

Health benefits of a VLCD

A VLCD may allow a patient who is moderately to extremely obese to lose about 3 to 5 pounds per week, for an average total weight loss of 44 pounds over 12 weeks. Such a weight loss can rapidly improve obesity-related medical conditions, including diabetes, high blood pressure, and high cholesterol.

Obesity affects nearly one-third of adults in the United States, increasing their risk for diabetes, high blood pressure, and heart disease. Traditional weight loss methods include low-calorie diets from 800 to 1,500 calories a day and regular physical activity. Health care providers sometimes consider an alternative method for bringing about significant short-term weight loss in patients who are moderately to extremely obese: the very-low-calorie diet.



Adverse effects of a VLCD

Many patients on a VLCD for 4 to 16 weeks report minor side effects such as fatigue, constipation, nausea, and diarrhea, but these conditions usually improve within a few weeks and rarely prevent patients from completing the program. The most common serious side effect is gallstone formation. Gallstones, which often develop anyway in people who are obese, especially women, are even more common during rapid weight loss. Research indicates that rapid weight loss may increase cholesterol levels in the gallbladder and decrease its ability to contract and expel bile. The drug ursodiol can prevent gallstone formation during rapid weight loss, but is not often used for this purpose.

Maintaining Weight Loss

Studies show that the long-term results of VLCDs vary widely, but weight regain is common. Combining a VLCD with behavior therapy and physical activity may help increase weight loss and slow weight regain. In the long term, however, VLCDs are no more effective than more modest dietary restrictions.

For most people who are obese, obesity is a long-term condition that requires a lifetime of attention even after formal weight loss treatment ends. Therefore, health care providers should encourage patients who are obese to commit to permanent changes of healthier eating, regular physical activity, and an improved outlook about food.

Endnote: This fact sheet is an updated, modified version of a previously published review article appearing in the August 25, 1993 issue of the *Journal of the American Medical Association*. Both the review article and this fact sheet were developed with the advice of the National Task Force on Prevention and Treatment of Obesity.

Additional Reading

Dieting and Gallstones. NIH Publication No. 02-3677. February 2002. Available from WIN.

Active at Any Size. NIH Publication No. 00-4352. March 2001. Available from WIN.

Healthy Eating and Physical Activity Across Your Lifespan: Better Health and You. NIH Publication No. 02-4992. June 2002. Available from WIN.



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The Weight-control Information Network (WIN) is a national service of the National Institute of Diabetes and Digestive and Kidney Diseases of the National Institutes of Health, which is the Federal Government's lead agency responsible for biomedical research on nutrition and obesity. Authorized by Congress (Public Law 103-43), WIN provides the general public, health professionals, the media, and Congress with up-to-date, science-based health information on weight control, obesity, physical activity, and related nutritional issues.

WIN answers inquiries, develops and distributes publications, and works closely with professional and patient organizations and Government agencies to coordinate resources about weight control and related issues.

Publications produced by WIN are reviewed by both NIDDK scientists and outside experts. This fact sheet was also reviewed by Rena Wing, Ph.D., Professor, Brown University and University of Pittsburgh School of Medicine.

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